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ABSTRACT

The ever-widening gap in farm productivity and income has resulted from differences in access to resources such as land and credit, limited access to information, and deliberate decisions by some farmers not to change. This last cause is the most difficult to correct. The decision not to adopt new practices is based on attitudes, values, and goals; these may need to be changed before different decisions can be reached. Adopters and non-adopters exhibit distinctly different characteristics, attitudes, value orientations, and behavior patterns. Different methods of communication are required to reach these discrete audiences. In the spread of information to disadvantaged farm populations, publications are not as effective as communication on a one to one basis. Information is best exchanged and accepted through face to face contact with county extension agents, home economics agents, nutrition aids, vocational-agricultural teachers, government representatives, and especially with family, friends, and neighbors. Attitudes such as traditionalism, conservatism, familism, and debt avoidance inhibit the adoption of new ideas. Guidelines are listed for a change agent to utilize in promoting both a positive attitude toward change and the acceptance of new ideas. (Author/DS)

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FOREWORD

Under the sponsorship of the Southern Rural Development Center, 10 teams of researchers and educators throughout the southern region have devoted the past year to a synthesis of timely and practical research in selected areas of interest.

These 10 functional networks, each under the leadership of a center associate, have prepared larger annotated bibliographies of important citations uncovered in their investigations. These synthesis papers follow the bibliographies and are intended to relate the useful applications to be derived from their survey of the literature.

More than just summary documents or reports, these synthesis papers can serve as a starting point for rural development planning and projects from the national to the local level. They assess the current state of knowledge and pinpoint techniques and methods for application of these findings.

This paper was prepared by the Network of Small Farm Programs under the leadership of Dr. W. Arden Colette at the University of Florida. The network's bibliography and additional copies of this paper are available from the Southern Rural Development Center.

William W. Linder
Director
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A Synthesis

THE ROLE OF COMMUNICATION AND ATTITUDES IN SMALL FARM PROGRAMS

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A Synthesis

THE ROLE OF COMMUNICATION AND ATTITUDES IN SMALL FARM PROGRAMS

W. Arden Colette and Gail Easley*

INTRODUCTION

Since World War II a major technological revolution has taken place in American agriculture. Between 1945 and 1974 the number of farms decreased by more than 50 percent, from almost six million farms in 1945 to less than three million farms in 1974. The importance of the farm population also declined as the ratio of farms to the total population decreased from one farm for each 24 persons in 1945 to one farm for each 75 persons in 1974.

Underlying these dramatic changes are the rapid change in technology and the increase in agricultural information that have occurred since 1945. During this 30-year period the extension service has made a major effort to make this information and technology available to all farmers. Yet not all farmers have adopted the new technology, and thus the gap in productivity and income between those farmers adopting the new technology and those farmers who have not has widened [Tweeten and Schreiner, 1970]. Those who adopt new practices gain a temporary advantage. Late adopters and non-adopters are then less able to compete with those accepting new technologies [Brandner and Kearl, 1964]. The gap thus created can be attributed in large part to differences in access to the information and to conscious decisions not to adopt the new technology. Understanding the forces underlying the development of this gap can be very helpful in developing programs and procedures

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which will help alleviate or reduce the size of the gap. Large farms are currently more efficient than small farms. This difference in efficiency is increasing as the large farms become even more efficient. Small farms that do not adjust their technology are placed in an even more disadvantageous position. The more time that elapses before technological adjustments are made, the greater the magnitude of the adjustment that must eventually be made if the farms are to remain economically viable [Schnittker, 1970]. According to Tweeten and Schreiner [1970], the smaller farms can continue to survive only by accepting lower returns to labor and equity than they could receive in other forms of employment.

Researchers during the past 20 years have identified many of the characteristics of the groups that adopted the new technology and those which failed to adopt. Their findings indicate that, although they both are part of the farm population, there are distinct differences between the groups, and they form vastly different audiences. Fliegel and Brown [1966] state that common themes recur in studies of low-income farmers. While low-income farm people do not represent a homogeneous group, smaller sub-groups with similar characteristics can be identified in different localities. Each audience has distinctive characteristics, attitudes, beliefs and behavioral patterns. Each group holds different values and is receptive to different means of communication.

DEFINING THE AUDIENCE

Disagreement exists not only about the definition of the small farm, but also about what to call this group of farms and farm operators. Research has been conducted on low-income farmers, the low-income problem, the

disadvantaged farmer, the limited-resource farm, and the limited-resource farmer. Efforts to improve the income, farm productivity, or quality of life for these groups seem to be intended for similar, if not identical, audiences: there is some disagreement on whether these groups are actually heterogeneous [Nelson and Whitson, 1963], or whether there are common characteristics which can be identified.

One major problem in attempting to "define" this audience is one of geographic locality. Studies conducted using samples from the small farm population, the low-income farm group, or any similar group have tended to define or delimit these samples in terms of the locale of the study. Thus, these definitions may not be universal in scope. In many cases an entire area or region has been designated as low-income or poverty level. A sample taken from this area differs markedly from the sample of low-income farmers taken from a larger region where poverty is not the norm. There is some indication, however, that low-income farmers tend to be concentrated in certain "problem areas" [Nelson and Whitson,1963].

The difficulties of defining the small farm are enumerated by Bauder [1956]. He notes that two types of criteria are used: measures of input and measures of output. Size of operation is usually determined by total acres, acres of cropland, labor requirements or capital outlay, all measures of output. In the literature, the prevalent measure of size is the number of acres of land in the farm. Bauder suggests that measures of input use are generally used rather than measures of output, possibly due to greater availability of data. An examination of research studies for this synthesis indicates that measures of output are also frequently used [Bauder, 1956; Tweeten and Schreiner, 1970; Stewart et al., 1976]. Bauder [1956]

asserts that the best single measure is the value of farm products produced.

A variety of definitions of the small farm may be found in the literature. The disadvantaged farm operator, according to White and Boone [1976], is an individual earning a living by farming and meeting these criteria: 1) production unit of 10 or more acres with total annual receipts of $50 or more, or a production unit of nine acres or less with total annual return of $250 or more; or 2) income below eligibility standard for the North Carolina Social Services Food Stamp Program. Lee [1967] defines the economically disadvantaged farmer according to the "widely accepted" and "commonly used" poverty definition of a cash family income below $3,000.

The "small commercial farm" in a study by Sullivan and Stech [1968] is defined as Economic Class V and VI farms as classified by the U.S. Census Bureau (value of farm products sold is between $50 and $4,999, provided that on farms with sales of $50 to $2,499 the farm operator is under 65 years of age, works fewer than 100 days off the farm during the year and the income received by the operator and/or family from non-farm sources is less than the value of farm products sold).

In a comparison among families on farms of six different sizes, Bauder [1956] designated the groups according to labor requirements, measured in productive-man-work units. Although he outlined the problem of the definition of a small farm, he failed to differentiate between small and large farms in the six groups.

Stewart et al. [1976], in a study of limited-resource farms, dealt with a sample of farm operators having gross sales of less than $5,000. They also noted that the farms in the study were small, averaging 114 acres. In a study of the low-income problem of small farmers in Appalachia, Pavlick [1964] relied on the 1964 Census of Agriculture definitions. Therefore, places of

three or more acres were counted if the annual value of agricultural products amounted to $150 or more.

It appears, therefore, that the definitions are generally arbitrary. In some cases, definitions are based on limits or guidelines already in use for other purposes. These may be establishment of poverty level for census use, designation of a geographic area as a poverty or low-income region, or an Economic Development Area. The problem arises due to changes in these definitions over time, resulting in a lack of uniformity. Furthermore, there is no consensus on which designation to use. Finally, in many studies definitions are devised to "fit" that individual situation. Comparisons between studies are difficult due to the lack of universal agreement on a definition of the small farm.

Another means of identifying the group of small farm operators and their families is through socio-economic characteristics. Members of the small farm population have lower incomes, generally lower education levels, and a lower degree of social mobility than members of society in general. There is a negative relationship between the size of the farm and the size of the household. The small farm operator tends to have a larger family size than is found on large farms [Sullivan and Stech, 1968, Slocum et al., 1958; Bauder, 1956; White and Boone 1976]. Both the farm operator and his spouse have relatively less formal education than average [Slocum et al., 1958; Sullivan and Stech, 1968; Bauder, 1956; White and Boone, 1976; Stewart et al., 1976; Pugh, 1967]. When compared to the large farm operator, the small farm operator is older [Sullivan and Stech, 1968; Slocum et al., 1958; Bauder, 1956; White and Boone, 1976; Pugh, 1967; Hoffer and Stangland, 1958]. Furthermore, this disproportion of older people is evident among low-income farm

people but not necessarily among all low-income people in a region [Fliegel and Brown, 1966]. The small farm operator and his family are generally among the lower income sector of society [Slocum et al., 1958; White and Boone, 1976; Pugh, 1967; Fliegel and Brown, 1966; Stewart et al., 1976; Pavlick, 1964; Bauder, 1956]. Finally, the small farm family belongs to few organizations and exhibits less social participation than is usually found in the larger society [Slocum et al., 1958; Ford, 1965; Bauder, 1956; White and Boone, 1976].

THE SMALL FARM PROBLEM

It is generally accepted that technological progress has been occurring at an increasing rate over the past 30 years. However, small farm operators have failed to reap the benefits of the technologies and information available. The result has been a widening economic gap between large and small farm operations. In general, the small farm is depicted as low-income, limited-resource, or disadvantaged. Preliminary data for the 1974 Census of Agriculture [1976] reports 1,666,903 farm units with gross sales of less than $20,000. This accounted for 68 percent of all farm units. Although this group of farm operators controls 38 percent of all land in farms, it receives less than 11 percent of the total cash receipts from farming. Programs have been developed with the purpose of reducing the size of the economic gap between the large and small farms. Efforts are being made to increase productivity, improve the quality of life, and increase the income of the small farmer and his family. However, established means of communication have failed to work for low-income farmers [Lee, 1967].

Educational programs for small farm operators must be designed to

utilize effective channels of communication and sources of information in order to achieve a measure of success. It is important to consider attitudes of the target audience, factors which influence the rate of adoption of new ideas and practices, and factors which affect the success of change agents in bringing about social change in the client group. Successful programs cannot ignore the influence and importance of all of these factors on the outcome of the program.

COMMUNICATION

Communication is the process of transferring information from a source to a receiver. A model of the communication process includes an information source, a message, a channel by which the message is transmitted, a receiver, and finally the effects of the message [Rogers and Shoemaker, 1971]. Communication channels are the methods by which this information is transferred. Channels of communication include mass media, such as radio, T.V.; books, magazines, newspapers, bulletins, and pamphlets; and interpersonal channels, or face-to-face contact. The value of a channel of communication is determined by its availability to the receiver, perceived credibility, and usage by the receivers. The communication channel is important in determining the receiver's decision regarding the message or information transmitted. Choice of the channel is made by the communication source. The channel chosen should be determined by the message and the intended audience [Rogers and Burdge, 1972].

White and Boone [1976] used the above communication model to study the availability, usage and credibility of information sources. In this study it was found that interpersonal sources were highly available, widely used

and highly credible. The most frequently used information source among disadvantaged farm families is interpersonal communication. These farm families are more likely to interact with people on a one-to-one basis and to seek an exchange of information in this manner. An especially important source of interpersonal information is the network of family, friends, and neighbors. Family members are more likely to seek information from other family members, from personal friends, or from neighbors. This face-to-face contact is important for an effective exchange of information. However, interpersonal channels of information are not limited to friends, neighbors, and family. They may include face-to-face contact with change agents*, representatives of fertilizer, equipment and feed dealers, religious leaders and elected officials.

As a source of farm and home information, publications such as bulletins, pamphlets and magazines are rated low in availability by the disadvantaged farm family [White and Boone, 1976]. This group perceives the credibility of the publications to be low, and accordingly, the publications are not used as a major source of information. Of all the publications reviewed by White and Boone [1976], The Farmer's Almanac is ranked highest in terms of credibility and usage. Reliance on publications for disseminating information to disadvantaged farm families should be discouraged since publications, and especially bulletins, are ranked relatively low in terms of availability, credibility and usage by disadvantaged farm families. Where publications are used to disseminate information, the level of readability should be considered [White and Boone, 1975].

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*This includes county extension agents, home economics agents, nutrition aides, vocational-agricultural teachers, representatives of government agencies, et al.

Readability is an important aspect of materials designed to reach the disadvantaged farm family. The style of writing and choice of vocabulary in publications presently in use are often directed at an audience with more education, and a higher level of reading ability, than the disadvantaged farm family. Therefore, readability level should be considered in preparing materials to be used by this audience.

In the communication process a message is transferred from a sender to a receiver. When the message intended for a particular group of receivers is not in language which holds the same meaning for both sender and receiver, then the message may be understood only by the sender and not by the intended receiver. Often communication intended for the poor is not understood by the target audience [Awa, 1974].

Communication for change should be affected by the characteristics of the disadvantaged insofar as these characteristics differ from those of the advantaged who are formulating the communication. In order to formulate messages which not only can be understood but also will be accepted, a knowledge of the subculture, language, information level, and prejudices of the target audience is required [Zurcher, 1972]. Differences in attributes between a subculture and the general society result in differences in language and meaning. This results in the transfer of messages which are not understood. Once a pattern of misunderstanding has been established communication barriers develop.

Communication is more effective when the information source and the receiver have similar characteristics; that is, they share common backgrounds, beliefs and attitudes and have the same understanding of the meaning of words. This type of relationship is referred to as a homophilous relationship.

In the exchange of information, the message is more likely to be understood when the source and receiver are most alike in language and meanings. When the sender and the receiver of a communication differ in such attributes as values, beliefs, education, economic circumstances and understood meanings of the language, then a heterophilous relationship exists. Communication is less effective when the sender and the receiver do not share similar characteristics [Rogers and Shoemaker, 1971].

Communication is an important element in effecting social change. In examining this social change we must be concerned with modification of the function and structure of the system along with the actual process of change. The process by which an innovation, or a new idea or practice, is spread to members of the social system, is called diffusion, a subset of communication [Rogers and Shoemaker, 1971].

DIFFUSION AND ADOPTION OF INNOVATIONS AND NEW PRACTICES

An idea, practice or object which is perceived as new by an individual is called an innovation. Diffusion is the process by which an innovation is spread to the members of a social system. The mental process through which an individual passes, from first knowledge of an innovation to a decision to adopt or reject the innovation, is the innovation - decision process. It consists of four stages: knowledge, persuasion, decision, and confirmation. In the knowledge stage the individual is made aware of the existence of the innovation. The individual forms attitudes about the innovation during the persuasion stage. The innovation is accepted or rejected during the decision stage. In the confirmation stage the individual seeks reinforcement or confirmation of his decisions [Beal and Rogers, 1960;

Lionberger, 1960; Rogers and Shoemaker, 1971; Bohlen, 1964].

The communication channels, mass media or interpersonal have different degrees of effectiveness in the different stages in the decision-making process for the adoption of an innovation. Mass media channels of communication are most important in the knowledge stage. Exposure to mass media is more effective in communicating ideas to the early adopters than in communicating with those who are relatively slow to adopt. Interpersonal communication channels are relatively more important for the persuasion stage in the decision-making process. Face-to-face contact, or interpersonal communication, is a highly effective channel of communication. It is often a transfer of personal experience and thus has a high degree of perceived credibility. Therefore, as might be expected, interpersonal communication channels are highly important in the persuasion stage in the decision to adopt an innovation [Beal and Rogers, 1960].

Although he may not communicate personally with them, the county extension agent may be a key factor in the communication of information to the disadvantaged farm family. In seeking information through interpersonal channels, farmers tend to seek information from other farmers who have had direct contact with the county extension agent. This is an example of the step flow characteristic of the diffusion of information through a community.

Rate of Adoption

The relative speed with which an innovation is adopted by members of a social system is the rate of adoption. The perceived attributes of an innovation will have an influence upon the rate of adoption [Rogers and Burdge, 1972; Rogers and Shoemaker, 1971]. Important characteristics of innovations are:

1. relative advantage
2. trialability
3. complexity
4. compatibility
5. observability

There is a positive relationship between the perceived relative advantage of a new idea and the rate of adoption. When an innovation is perceived as being better than the idea or practice which it replaces, it will be adopted in a community at a faster rate. The advantage may be perceived in terms of greater profit, reduced labor requirements, lower risk, immediacy of reward, or improvement in other characteristics that are considered desirable. Those new ideas or practices which are not seen as having a relative advantage will be adopted more slowly or will fail to be adopted [Rogers and Burdge, 1972; Rogers and Shoemaker, 1971].

The rate of adoption of an innovation is influenced by the trialability of the innovation. If an innovation can be experimented with on a limited basis, or tried in installments, it will generally be adopted more rapidly than those innovations which are not divisible. An innovation which can be experimented with on a trial basis represents less risk to the potential adopter. Therefore, perceived trialability of an innovation is positively related to its time of adoption [Rogers and Burdge, 1972; Bohlen, 1964; Kivlin and Fliegel, 1967; Fliegel and Kivlin, 1966; Rogers and Shoemaker, 1971].

The importance of perceived trialability of an innovation decreases as more people adopt the new practice. Since they have a chance to see the new practice under farm conditions, the trial stage is less important. Those who are later to adopt are more likely to skip over the trial stage in acceptance of a new idea or practice.

The complexity of an innovation is the degree to which it is perceived as difficult to understand or use. There is a negative relationship between the complexity of an innovation and the rate of adoption of that innovation. When individuals perceive a new idea or practice to be difficult to understand and use, they will be slower to adopt the innovation. New ideas requiring little additional learning will be adopted more rapidly than innovations requiring new skills or understandings [Bohlen, 1964; Kivlin and Fliegel, 1967; Rogers and Shoemaker, 1971; Rogers and Burdge, 1972].

A new idea or practice which is compatible with existing values and beliefs will be adopted more rapidly than a practice which is not perceived as being compatible. Compatibility with the existing value orientation represents less risk in adoption and therefore is more consistent with conservative or traditional attitudes. It is much easier to accept new ideas which make small changes than it is to accept those new ideas that require large changes in attitudes or values [Brandner and Kearl, 1964; Kivlin and Fliegel, 1967; Rogers and Burdge, 1972; Rogers and Shoemaker, 1971].

The rate of adoption will be greater for innovations which are highly visible. Observability is the degree to which an innovation, or the results of an innovation, are visible to the receiver. The easier it is to observe the innovation, the more likely it will be adopted [Bohlen, 1964; Rogers and Shoemaker, 1971; Rogers and Burdge, 1972].

The norms of the social system will either serve as incentives or restraints to the farmer's decision regarding the adoption of innovation. The norms of the system, or the established behavior patterns for the members of the system, may act as a barrier to change. A highly traditional social system will be very resistant to change and the rate of adoption comparatively

slow. However, in a system where the social climate is favorable to the adoption of innovations, the diffusion of information and the rate of adoption of a new idea will be very high [Rogers and Shoemaker, 1971].

AUDIENCE CHARACTERISTICS AND ATTITUDES

In the 1950's a study was conducted by Hoffer and Stangland [1958] on the use of approved farm practices. Those personal and social factors associated with the farm operator's adoption of these practices were identified. The general conclusion of their work was that the farmer's attitudes and values are determinants in the adoption decision. They found that farmers who are conservative and place a high value on security either delay or fail to adopt new practices. New practices represent a potential risk to the farmer. A farmer who prefers to use practices which yield a low but predictable return rather than practices which may yield a higher average return but with less predictability will be slower to adopt new practices. The need for security and certainty in the farmer's decision, as exhibited in his cautious or conservative attitudes toward change, may result in the deterioration rather than the maintenance of his relative economic position.

Patterns of behavior of the low-income groups targeted for assistance are logical given their value and belief system. Although generalization may be misleading, it can be helpful in identifying problems and selecting courses of action and communication strategies. In general, small farmers are characterized as individualistic,conservative, resistant to change, and strong supporters of traditional rural values. In the small farm population, important social systems are not necessarily formal; rather they are often based on kinship or friendship [Slocum, 1967]. Since these contacts are

definitely limited, the small farmers are somewhat isolated socially. They have fewer and different information sources than society in general and differ in basic attitudes and values. Small farmers tend to be reserved, resist change and have a somewhat sentimental value orientation toward the community.

It is important to recognize that social characteristics, attitudes, and related behavior differ markedly between the program planners and their audience. In fact, many such planners who operate from a different set of values and beliefs cannot comprehend what they perceive to be apathetic responses by their audience [Ford, 1965].

Zurcher [1972] supports this hypothesis and points out that the characteristics of the disadvantaged are most important in understanding their differences from the dominant society rather than their similarities. Many of the characteristics which he identified are frequently mentioned as descriptive of the disadvantaged farmer: a feeling of inferiority, hopelessness, dispair or powerlessness; low motivation/aspiration; and traditionalism.

Traditionalism in the farm family has been identified by Fliegel [1962] as a deterrent to the acceptance of change. Results of his study support the hypothesis that characteristics of the family which reflect a traditional orientation may also serve as obstacles to change in other areas. Traditional attitudes among farmers have a significant, negative relationship to the farmers' adoption of new practices. The decision in favor of adoption of a new practice is less likely among farmers possessing traditional attitudes, values and beliefs than among farmers with a more modern value orientation. Fliegel [1960] suggests that economic factors alone do not account for the fact that low income has become a chronic condition in many farm areas in

spite of efforts at improvement. Value orientations, such as extreme familism, avoidance of debt, orientation toward the present, and passivity with respect to problems of mastering their environment, produce barriers to the acceptance of change.

In surveys, many farm families have indicated that they are satisfied with their present income levels [Nelson and Whitson, 1963]. This may not be a true indication of satisfaction but a reflection of acceptance of the status quo and a fatalistic attitude that the individual has no real power over his economic situation.

It has been observed for some time that farmers, especially small-farm operators, appear to make management decisions that tend to increase security and certainty of expectation rather than maximize profit [Fliegel and Brown, 1966]. Often profit maximization is used as the criterion for measuring economic performance. Profit maximization is assumed to be the primary goal of a rational producer. However, other goals and values may be more important to an individual than maximizing profit. Many traditional values, such as debt-free ownership of land, are inconsistant with the objective of profit maximization. Smith and Capstick [1976] surveyed 111 farmers in northeast Arkansas in an effort to test whether profit maximization was the primary goal. In ranking the 10 goal alternatives in the survey, farmers placed profit maximization seventh. In order to ranking, the 10 goals were: 1) stay in business; 2) stabilize income; 3) increase efficiency and production; 4) provide a college education for children; 5) improve standard of living; 6) reduce borrowing; 7) maximize profit; 8) increase leisure time; 9) increase net worth; and 10) increase farm size. Consideration of this goal ranking indicated that stability and certainty were much more important in the value structure of small farm operators than profit maximization.

Studies have been conducted by a number of researchers in an attempt to determine the values and attitudes of the small farmer and relate these factors to contact with the cooperative extension service. Slocum et al., [1958] identified the characteristics and attitudes of families with low contacts with the extension service and the differences from families with high contacts. They found that low-contact families tend to be somewhat socially isolated. There was a significant association between the number of contacts, level of education attained, and stage in family life cycle. The lowest levels of contact were for those with low levels of education and for families with children under 14 years of age living at home. The traditional farm family sees the farm as the focal point of their lives. As a result they tend to have limited social involvement and do not participate in non-farm-oriented organizations. The farm occupies most, or all, of their attention.

A five year experiment in extension education was conducted in Michigan with the objective of increasing output, increasing the rate of acceptance of new farm practices and bringing about a higher level of living for farm families. In a report of this study Nielson [1962] examined attitudes toward farming, toward the role of science in agriculture, and toward the use of credit. It was found that there was a statistically significant relationship between these attitudes toward credit and stage in family life cycle in that attitudes were unfavorable for families with young children at home. Due to the intensive work by the agents with the families in the experiment, the program contributed to increased satisfaction of many farmers. This resulted from adoption of new practices by the farmers, as well as the agents raising farmer morale, providing encouragement and instilling confidence in the farmer.

ADOPTER CATEGORIES. CHARACTERISTICS AND ATTITUDES

The members of a social system may be classified on the basis of their degree of innovativeness. In the most commonly used classification five adopter categories are defined on the basis of time of adoption. The first to adopt new ideas are called innovators and the last to adopt are termed laggards. The five adopter categories are:

1. innovators,
2. early adopters,
3. early majority,
4. late majority,
5. laggards.

Non-adopters are excluded from this classification.

The farm operators in the different adopter categories can be characterized by different personal and social characteristics. Beal and Rogers [1960] conducted a study of practice adoption and found that, compared to late adopters, early adopters had the following characteristics: larger farms; greater usage of communication, greater contact with the extension service, and a more favorable attitude toward change.

Individuals who do not have a positive or favorable attitude toward change will be less receptive to information on new practices. Since conservative or traditional values are generally associated with an unfavorable attitude toward change, it may be very difficult to change the attitudes without altering the basic values.

According to Lionberger [1960], those who are relatively slow in adopting farm practices tend to have mostly local social contacts. These late adopters are reluctant to accept new ideas, especially when introduced by outsiders.

The Subcommittee for the Study of Diffusion of Farm Practices, North Central Rural Sociology Committee [1955] prepared a report which indicates that the relatively early adopter usually has a larger farm, a higher income, a greater contact with sources of information about new practices, greater participation in organizations, and is younger.

The laggard, or last to accept a new practice, is generally a lower-class farmer. He will tend to retain an agrarian orientation and take refuge from his economic isolation in his agrarian values [Buttel and Flinn, 1975]. Laggards are highly dependent on friends and neighbors for information at all stages of the adoption process. Laggards and late adopters use personal information sources to a greater extent than do early adopters.

The characteristics of late adopters have been summarized by Bohlen [1964]. These characteristics are:

1. less able to deal with abstractions,
2. more means-oriented,
3. less willing to take risks (also less willing to borrow or seek credit),
4. lower practice and product knowledge,
5. less secure as individuals,
6. exhibit a greater time lag between awareness and adoption of a new practice,
7. tend to use what they consider a trustworthy information source rather than an expert,
8. tend to be more localistic in orientation and contacts,
9. rely more on personal sources of information and two-way communication in the adoption process,
10. more inclined to look upon farming as an art; therefore, reluctant to admit a lack of knowledge of anything essential,
11. more inclined to operate on "break even" theory,
12. disproportionate participation in gemeinschaft systems (strong reciprocal bonds of sentiment of kinship), and
13. lower professional orientation toward farming.

Each of the five adopter categories has particular attitudes and characteristics. The adopter categories also differ in their communication behavior. These characteristics are summarized in the Table. An earlier discussion in this paper considered the adoption process (knowledge, persuasion, decision, and confirmation) as well as factors which may influence the rate of adoption. All of these considerations are combined in the concept of the ideal adoption curve shown in the Figure. The first division reflects a slow, gradual start. The second stage shows acceptance at increasing rates. As awareness and interest spread, greater numbers adopt. Finally, adoption rates decrease as late adopters and laggards accept new practices which are not only in use by the majority, but are even being replaced by other new practices [Lionberger, 1963].

The norms of the social system an individual belongs to are another important influence upon the individual's innovation-adoption behavior. Norms are the established behavior patterns in a social system. Van den Ban [1960] examined the differences in adoption as influenced by the existence of traditional norms. Although such individual characteristics as a farmer's education, size of farm, and net worth were positively related to his innovativeness, the township norms were even better predictors of farmer innovativeness. Van den Ban concluded that a farmer with a high level of education, on a large farm, and with a high net worth, but residing in a township with traditional norms, adopted fewer farm innovations than if he had a lower level of education and a smaller farm in a township where the norms were modern.

TECHNIQUES FOR CHANGE

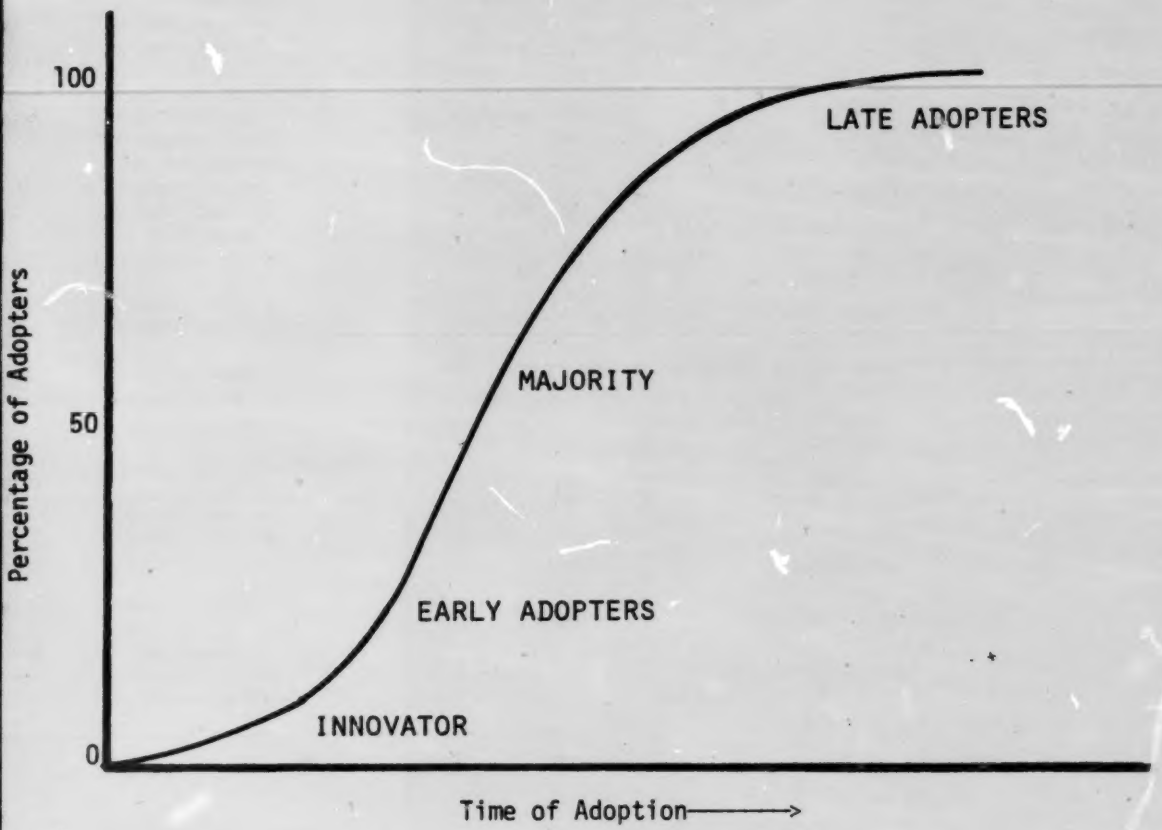
There is agreement that personal contacts play an important role in the spread of information about innovations to the members of a social system.

Table
Summary of Characteristics of Adopter Categories.

Characteristic or Behavior	Innovators	Early Adopters	Early Majority	Late Majority	Laggards or Late adopters
1. Time of adoption	First 2.5 percent to adopt new ideas.	Next 13.5 percent to adopt	Next 34 percent to adopt	Next 34 percent to adopt	Last 16 percent to adopt
2. Attitudes and values	Scientific and venturesome	Progressive	More conservative and traditional	Skeptical of new ideas	Agricultural magic and folk beliefs; fear of debt.
3. Abilities	High level of education; ability to deal with abstractions	Above average education	Slightly above average education	Slightly below average education	Low level of education; have difficulty dealing with abstractions and relationships.
4. Group memberships	Leaders in county wide or state organizations; travel widely	Leaders in organizations within the community	Many informal contacts within the community	Little travel out of community; little activity in formal organizations.	Few memberships in formal organizations other than church; semi-isolates.
5. Social status	Highest social status, but their farming practices may not be accepted.	High social status; looked to be neighbors as "good farmers."	About average social status	About average social status	Lowest social status
6. Farm businesses	Largest, most specialized, and most efficient.	Large farms; slightly less specialized and efficient.	Slightly larger than average-sized farms	Slightly smaller than average-sized farms.	Small farms; low incomes; seldom farm owners.
7. Sources of information	Scientists; other innovators; research bulletins Extension bulletins	Highest contact with local change agents; farm magazines Extension bulletins	Farm magazines; friends and neighbors	Friends and neighbors	Many friends and neighbors; radio farm shows

Source: Rogers and Burdge [1972].

Figure
The Ideal Adoption Curve



Personal contact and intensive assistance are necessary for any degree of program success when working with the low-income farm family.

Farmers have indicated the most useful contacts are those in which they have the opportunity and time to discuss their problems personally. This is particularly true when the discussion takes place on their farm [Photiadis, 1961].

The results of a study by Copp [1958] suggest that a program will be of limited success if it fails to take into account limitations imposed by the economic status and by the farm operator's personality orientations. A seminar conducted by the Southern Farm Management Extension Committee [1973] suggests that a program for limited resource farmers should include:

1. all classes of farms, not just those with the potential to become commercial farmers,
2. the whole family,
3. enterprises and activities identified by the target audience themselves,
4. the endorsement of the establishment, and
5. innovations pertaining to something the farmer is already doing but doing poorly.

The Change Agent

A change agent is a professional who tries to influence the innovation decision. This category may include the county extension agent, the home economics agent, nutrition aides, vocational-agricultural teachers or representatives of government agencies. The desirability and direction of change are generally determined by the governmental agency directing the program. For the greatest success, members of the target audience should be involved in making these determinations.

In addition to the more common measurement in terms of innovation

adoption, change agent success can be measured in terms of improved levels of living, higher incomes among clients, etc. In evaluating success, higher incomes and a better level of living are viewed as consequences of adoption of innovations. The extent of change agent effort is positively related to the success of the change. Rogers and Shoemaker [1971] found that change agent effort is more effective in the middle stages of adoption than in the early or late stages.

It may be useful for the change agent to have guidelines in attempting to promote the acceptance of new ideas. Lionberger [1963] proposes 12 action implications for change agents:

1. Use mass media to inform people about new ideas and practices and, perhaps, to create an interest in them.
2. Facilitate communicative exchange among people about innovations and new developments.
3. Select communicators who are personally acceptable to the local clientele.
4. Insofar as possible, plan and conduct special promotional programs for special functionaries, namely innovators and influentials.
5. Insure successful trial of new products, practices and ideas by innovators and early adopters.
6. Use limited resources in helping people who are ready to try a new idea or practice and in making them successful demonstrators for others.
7. Enlist the help of dealers in informing people about new developments in farming and for giving counsel and advice on such matters.
8. Use existing decision-making processes.
9. Pre-test educational materials before large scale production and use, particularly in cross-cultural situations.
10. Take account of the culture of the people in planning a message content.
11. Reinforce decisions already made to keep farmers and others who have made the right decision from changing their minds.
12. Set realistic targets for achievement (pp 206-209).

The degree of change agent success is affected by many factors including the change agent's perceived credibility, client orientation, and homophily [Rogers and Shoemaker, 1971; Rogers and Burdge, 1972; White and Boone, 1976].

There is a positive relationship between change agent success and the degree of credibility perceived by his clients. When a client sees the change agent as having a relatively greater credibility than other information sources and channels, the client will be more receptive to messages from the change agent. Therefore, as credibility increases, communication efforts are more effective and program success is greater.

Change agent success is positively related to his orientation toward his client. When the change agent is able to establish a close rapport with the client group and to be responsive to feedback from the clients, he will experience a greater degree of success. The compatibility of his programs with the needs of the clientele is closely related to the change agent's success. Change programs must be designed to fit the perceived needs of the clients, as well as their attitudes, beliefs, and social norms. Client needs are best established through client participation in program planning. This participation increases the client's commitment and legitimizes the decisions. Where programs are designed to be responsive to and compatible with the perceived or felt needs of the client group greater success will be achieved.

The change agent is subject to pressure to produce measurable results. As a consequence, he interacts more frequently with the more responsive clients. Generally the more responsive farmers are those who already possess a favorable attitude toward change. This results in a concentration of activities by the change agent on clients with higher social status, more education, etc. As a result of the reporting pressures, the change agent often fails to inter-

act with those clients most in need of help.

Change agent success is positively related to the degree of homophily between the change agent and the audience. When they share similar language and meanings, and common attributes or values, beliefs, status, etc., communication will be more effective. The change agent will have greater success in persuading farmers to adopt new ideas and practices. The importance of homophily in the acceptance of the change agent is the basis for using para-professionals selected from the local target audience in programs directed toward the low-income farmer.

The use of para-professionals is an increasingly accepted method of reaching low-income farm families. It is an attempt to bridge the gap between the low-income target audience and the middle-class institution. The advantages of using indigenous para-professionals in community development programs are outlined by Korsching and Warner [1975] and Warner and Korsching [1975]. In general, the advantages include the fact that they are peers of the target audience, they are familiar with the subculture of the group, they relate to the group informally, and they deal with problems from within the social system of the group.

There is a positive relationship between change agent success and the extent to which opinion leaders are involved in the program. Opinion leaders are able to exert some degree of informal influence over other individuals' attitudes or behavior. When the change agent focuses communication activities on opinion leaders, the diffusion of information occurs more rapidly and more effectively. Change occurs more spontaneously and new ideas and practices gain local sanction from these leaders. The result is greater program success.

Opinion Leaders

Opinion leadership is the degree to which an individual is able to informally influence other individuals' attitudes or overt behavior. Leadership implies that the changes in attitudes or behavior occur with relative frequency and in the way desired by the opinion leader. A position as an opinion leader is earned and maintained through technical competence, social accessibility, and conformity to the system's norms.

Opinion leaders differ from others in the social system [Rogers and Shoemaker, 1971; Lionberger and Chang, 1965]. Although opinion leaders are not always innovators, they do tend to exhibit a greater degree of innovativeness than their followers. Recognition as competent leaders and experts on innovations may result from the leaders' tendency to adopt new ideas before their followers. There is also a tendency for opinion leaders to be more innovative when the norms of the system favor change than when the system norms are more traditional.

Opinion leaders have more contact with change agents than do their followers. Contact with change agents serves to increase the opinion leaders' competency as perceived by their followers. Followers tend to seek advice and information from opinion leaders who are perceived as more competent. Therefore, opinion leaders serve as a means of introducing new ideas into the social system.

The level of social status differs for followers and opinion leaders. Opinion leaders tend to be of a higher status level. New ideas usually enter a system through those individuals of a higher status and flow down to the lower status levels. At the same time individuals at the lower levels look toward the elites as leaders.

Opinion leadership is exhibited to a greater degree by earlier adopters than those who are later to adopt a new practice. Those individuals who have been relatively earlier to adopt have had a greater exposure to all forms of communication, especially the highly effective interpersonal channels of communication. They have been among the first to get information on new ideas and practices. As early adopters, they have exhibited attributes which also make them leaders in the system.

Feed, seed, fertilizer and machinery salesmen and dealers often serve as opinion leaders in the communication process. They are often consulted by farm operators in making farm production decisions. In many communities these dealers are regarded as friends by farmers. However, in some areas the dealer is perceived as having a relatively low credibility if it is felt that he promotes overadoption in order to obtain higher sales. Frequently, however, farmers have respect for the local farm store dealer and his ideas and actions shape the opinions of the farmers.

Income Improvement

There is widespread belief that low-income farmers either lack adequate resources or make inefficient use of their resources. The Southern Extension Farm Management Committee [1973] has explored means of providing assistance to low-income farmers in the South. They feel that these farmers are not using the most profitable production practices, have below average physical resources for farming and need educational assistance in order to realize maximum net income from their limited resources. However, it is recognized that differences exist in characteristics of low-income farmers and that variations in planning may be required in order to fit individual situations.

There is a need for technology which a farmer could utilize to make

his work more effective on the size of farm he is already operating. Important characteristics would be relative simplicity, durability, reliability, modest initial cost and modest operating cost. Dependence of the individual operator on specialized services should be kept to a minimum.

Pavlick [1964] found limited opportunities for any significant income improvement, due primarily to problems of low productivity associated with limited resources. One method of improving income would be increasing the farm size--adding either land, labor, capital--or improving management Theoretically, net income is thus increased by increasing the number of units produced and decreasing per unit costs. Pavlick found, however, that a major obstacle to conversion of subsistence farms to commercial operations is the existence of a folk culture with an orientation to tradition and sentiment.

Recent studies have examined the possibilities for increasing incomes on farms with limited resources. Stewart et al., [1976] found that an increase in land was not always necessary for income improvement. In general, improved technologies, even partially adopted, or changes in enterprises or enterprise combinations, yielded good results. They found potential constraints on program success, primarily due to a low level of education of the farm operator, little xtension gent contact, and the need for capital. However, they conclude that public investment in technical assistance programs is more likely to yield improvements in economic welfare than is direct aid.

SUMMARY

The ever widening gap in farm income has resulted from differences in access to resources such as land and credit, limited access to information and deliberate decisions by some farmers not to change. Programs and policies can be easily developed and implemented which will address the first two causes. Resources and information can be made available. The third cause is much more difficult to correct. The decision not to adopt new practices is based on attitudes, values and goals. These may need to be changed before a different decision is reached.

Adopters and non-adopters exhibit distinctly different characteristics, attitudes, value orientations and behavior patterns. Different methods of communication are required to reach these discrete audiences. In designing programs to reach the disadvantaged farm population, several factors are important. The use of mass media in communicating information is of limited effectiveness. Although mass media is relatively more important at the knowledge stage in the decision-making process, it has little usefulness in later stages.

Interpersonal contacts, although highly effective, will also be highly inefficient for the change agent. The change agent will not be able to make large numbers of personal contacts. In the spread of information regarding new ideas and practices, face-to-face contact, or communication on a one-to-one basis, is the most important.

The process of change may not be rapid; in fact, it is likely that changes will occur slowly. Those groups most in need of social change are those groups most resistent to change. Their attitudes, such as traditionalism,

conservatism, familism, debt avoidance and so on, are a deterrent to change. It will be necessary for the change agent to instill a positive attitude toward change in order for the audience to be receptive to new information. It is very likely that attitudes cannot be changed, however, without changing the basic value orientation of the target audience.

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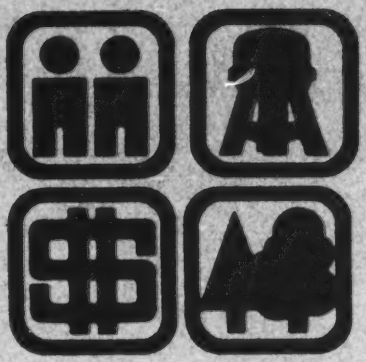

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